

## WHAT IS CLAIMED IS:

1. A multi-band antenna comprising:

an insulative substrate comprising a major surface;

a conductive element formed on the major surface of the insulative substrate, the conductive element comprising a first part resonating at a first frequency band and a second part resonating at a second frequency band, the first part and the second part being spaced from each other by a non-conductive gap; and

a coaxial cable comprising an inner conductor and an outer conductor, the inner conductor electrically connecting with the first part of the conductive element and the outer conductor electrically connecting with the second part of the conductive element.

2. The multi-band antenna as claimed in claim 1, wherein the non-conductive gap comprises a first branch and a second branch substantially perpendicular to the first branch, the first and the second branches separating the first part from the second part.

3. The multi-band antenna as claimed in claim 2, wherein the first branch comprises an open end arranged on a border line of the conductive element, and electrical connections between the coaxial cable and the conductive element are adjacent to the open end of the first branch.

4. The multi-band antenna as claimed in claim 2, wherein the non-conductive gap comprises a third branch extending from a junction of the first and the second branches into the second part of the conductive element.

5. The multi-band antenna as claimed in claim 1 wherein the first part is substantially rectangular and the second part surrounds two sides of the first part.

6. A multi-band antenna comprising:

a first conductive patch operating at a first frequency band;

a second conductive patch operating at a second frequency band, the second

- conductive patch substantially partially surrounding the first conductive patch;  
and  
a feed line comprising a first portion and a second portion, the first portion electrically connecting the first conductive patch, the second portion electrically connecting the second conductive patch;  
wherein when the first conductive patch operates in the first frequency band, the second conductive patch functions as a grounding portion for the first conductive patch; and when the second conductive patch operates in the second frequency band, the first conductive patch functions as a grounding portion for the second conductive patch.
7. The multi-band antenna as claimed in claim 6, wherein the feed line is a coaxial cable and comprises an inner conductor electrically connecting the first conductive patch and an outer conductor electrically connecting the second conductive patch.
  8. The multi-band antenna as claimed in claim 6, wherein the first conductive patch is spaced from the second conductive patch by a non-conductive gap.
  9. The multi-band antenna as claimed in claim 8, wherein the non-conductive gap comprises a first branch and a second branch substantially perpendicular to the first branch, the first and the second branches separating the first conductive patch from the second conductive patch.
  10. The multi-band antenna as claimed in claim 9, wherein the first branch comprises an open end arranged on a border line of the multi-band antenna, electrical connections between the coaxial cable and the multi-band antenna are adjacent to the open end of the first branch.
  11. The multi-band antenna as claimed in claim 9, wherein the non-conductive gap comprises a third branch extending from a junction of the first and the second branches into the second conductive patch.
  12. The multi-band antenna as claimed in claim 8, wherein the first and the second

conductive patches capacitively couple to each other via the non-conductive gap.

13. The multi-band antenna as claimed in claim 6, comprising an insulative substrate, the insulative substrate forming a major surface carrying the first and the second conductive patches.

14. A multi-band antenna comprising:

a rectangular insulative substrate defining a lengthwise edge of a lateral edge;

a conductive element formed on the substrate and have thereof an overall dimension similar to said substrate, said conductive element including a small first radiating patch and a large radiating patch separated from each other by a generally L-shaped gap, said gap being equipped with thereof two opposite ends terminating at said lengthwise edge and said lateral edge, respectively; and

a coaxial cable including an inner conductor and an outer conductor respectively connected to the first radiating patch and the second radiating patch around said lateral edge.

15. The multi-band antenna as claimed in claim 14, wherein said generally L-shaped gap includes a long section parallel to said lengthwise edge and a short section parallel to said lateral edge.

16. The multi-band antenna as claimed in claim 15, wherein said generally L-shaped gap further includes another short section extending from a joint section of said long section and said short section and opposite to said long section.